Probabilistic, Context-Sensitive, and Goal-Oriented Service Selection

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ABSTRACT

In this paper we propose a novel approach and a platform for dynamic service selection in composite Web services. The problem we try to solve is that of selecting, for each composite service execution and for each step in the execution, the service that maximizes the probability of reaching a user-defined goal. We first underline the limitations of *a priori* approaches based on having each service provider declare non-functional parameters and on trying to select services based on some utility functions over these parameters. Then, we propose an approach that overcomes these limitations by tackling the problem a posteriori: we analyze past executions of the composite service and build, using data mining techniques, a set of context-sensitive service selection models to be applied at each stage in the composite service execution. We show the architecture of a prototype that implements this approach and we discuss its benefits over the a priori approach.